19. An apparatus as claimed in claim 11, wherein at least one image of the sequence includes an intra-coded image frame.

20. An apparatus as claimed in claim 11, wherein at least one image of the sequence includes a predicted image frame (P-frame).

21. An apparatus as claimed in claim 11, wherein at least one image of the sequence includes an interpolated image frame (B-frame).

22. A method as claimed in Claim 1, wherein said encoding comprises encoding at a variable compression rate.

Remarks

Claims 2,3, and 8 have been canceled. The following claims 1, 4-7, and 9-22 are currently pending based on the amendment herein.

The Examiner rejected claims 1, 3-21 under 35 U.S.C. §102(b) as being anticipated by Kawamura *et al.* (5,621,840).

The Examiner rejected claim 2 under 35 U.S.C. §103(a) as being unpatentable over Kawamura *et al.*

The Examiner rejected claim 22 under 35 U.S.C. §103(a) as being unpatentable over Kawamura *et al.* in view of Jain (5,249,053).

35 U.S.C. §102(b)

The Examiner alleges that "[r]egarding claims 1 and 13-15, Kawamura *et al.* discloses a MPEG recording/reproducing device that records data blocks (col. 8, lines 10-17) and outputs

data blocks to produce a sequence of video images in figures 17 and 18. Kawamura *et al.* discloses that MPEG coding codes data in I, P, and B frames; and I frames are coded without reference to other frames; and P and B frames coded in reference to other frames (col. 3, lines 1-12). Additionally, it is inherent that each frame (or image sequence) is coded into a plurality of blocks (or macroblocks) in MPEG format. Kawamura *et al.* also discloses inserting additional data blocks into the stream, each of the additional blocks carrying data identifying the relative location of the first or only data block of an I frame (col. 7, lines 26-37)."

The Examiner alleges that "[r]egarding claim 3, Kawamura *et al.* teaches that each additional block identifies the first or only data block in the data block stream of the closest previously formatted I frame in figure 13."

The Examiner alleges that "[r]egarding claim 4, Kawamura *et al.* disclose storing data identifying the length of the closest previously formatted I frame in figure 19."

The Examiner alleges that "[r]egarding claim 5, Kawamura *et al.* discloses that the images are encoded in accordance with MPEG standard (col. 12, line 13) and all data block are of common size (col. 8, lines 10-17)."

The Examiner alleges that "[r]egarding claims 6 and 16-18, Kawamura *et al.* discloses a storage device (10) capable of being sequentially read and carrying an encoded (1) sequence of video images in figure 17. As discussed previously in the art rejection of claim 1, Kawamura *et al.* discloses images coded without reference to any other images (I frames); images coded with reference to other images (P and B frames); the images formatted into a sequence of data blocks; and with additional data identifying the storage location of the first or only data block of an I frame (figure 19); and at least one image of the sequence formatted into a plurality of data blocks (or macroblocks)."

The Examiner alleges that "[t]he limitations of claim 7 were discussed in the art rejection

of claim 5. Please refer to the art rejection of claim 5."

The Examiner alleges that "[r]egarding claim 8, Kawamura *et al.* discloses additional data identifying the storage location of the first or only data block of the closest previously formatted I frame in figure 19."

The Examiner alleges that "[r]egarding claim 9, Kawamura *et al.* discloses carrying at respectively separate storage locations auxiliary data associated with respective encoded image frames and each of the additional data block further carries data identifying storage location of the auxiliary data associated with the particularly indicated I frame (col. 11, lines 47-52).

The Examiner alleges that "[r]egarding claim 10, Kawamura *et al.* discloses that recording medium (DSM) may be an optical disc (col. 1, lines 30-35), wherein the additional data blocks identify the location of the first or only data block of the closest preceding I frame in terms of location on the disc (figure 19).

The Examiner alleges that "[r]egarding claims 11 and 19-21, as discussed previously Kawamura *et al.* discloses encoding successive images using a predetermined coding scheme, wherein some of the frame are intra-coded (I frames), and the remainder are coded with reference to other frames (P and B frames). Kawamura *et al.* also disclosed formatting the data into one or a sequence of data blocks; being operable to identify I frames (31), inserting additional data blocks (36) carrying data identifying the location of the first or only data block of an I frame (figure 19); and including formatting at least one image of the sequence into a plurality of data blocks (or macroblocks).

The Examiner alleges that "[r]egarding claim 12, Kawamura *et al.* discloses a player with a decoder (25) decoding and outputting a sequence of video frames, the player operable in a fast forward or fast reverse mode (col. 1, lines 1-17), the player comprising a means for selecting frames by selecting every Nth data block and displaying the I frame (col. 13, line 40 to col. 14, line

10).

Applicants respectfully contend that Kawamura *et al.* does not anticipate claims 1,6, 11,12 as amended because Kawamura *et al.* does not teach each and every feature of claims 1, 6, 11, and 12. For example, Kawamura *et al.* does not teach the feature of "characterised in that the step of formatting comprises the further steps of identifying intra-coded frames and of inserting **additional** data blocks in said data block stream at **fixed periodically repeated intervals**, each of said additional blocks carrying data identifying the relative location in the data block stream of the first or only data block in the data block stream of the closest previously formatted intra-coded image frame. "(emphasis added). Kawamura teaches a video data transmission method to transmit video encoded data for selected high speed reproduction. Applicants teach that that additional data blocks for locating a closest previously formatted intra-coded image frame will be placed in a data block stream at **fixed periodically repeated intervals**. The Examiner considered the preceding issue of **fixed periodically repeated intervals** in the rejection canceled claim 2 under 35 U.S.C. §103(a) as being unpatentable over Kawamura. In the next section, Applicants' response to the 35 U.S.C. §103(a) rejection, as applied to the amended claims 1, 6, 11, and 12 are as follows.

The Examiner admits that "[r]egarding claim 2, Kawamura *et al.* does not disclose that a single additional data block is inserted at fixed periodically repeated intervals." The Examiner alleges "Kawamura *et al.* teaches in the prior art that a fixed rate of compression results in the I frames occurring at predetermined positions (col. 3, lines 13-23). Therefore, if the compression rate was fixed then additional data block would be inserted at fixed periodically repeated intervals. It would have been highly desirable to have additional data blocks in the fixed compression rates so that the position of the I frame does not have to be calculated (col. 3, lines 12-23). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to have entry points in a fixed compression signal in the device of Kawamura *et al.*"

In response, Applicants respectfully contend that Kawamura does not teach or even suggest that an extra memory block (s) will be added at fixed periodically repeated intervals (e.g., every 25th block) and that the extra memory block (s) will point back to a first or only data block of a closest previously formatted intra-coded image frame. Applicants note that the Examiner has not presented a single reference that teaches or suggests adding an extra memory block (s) at fixed periodically repeated intervals that point to the first or only data block of the closest previously formatted intra-coded image frame. The Examiner is required to find support, other than his own hindsight reconstruction, for each and every feature of any claim rejected under 35 U.S.C. §103(a) in order satisfy his burden of proving a *prima facie* case of obviousness. Here, the only reference the Examiner has cited is the Examiner's hindsight reconstruction. The Examiner cannot use himself as a reference, but must find an independent reference that teaches or suggests every feature of the claims at issue. Applicants also note that the Examiner learned of the novel idea of **fixed periodically repeated intervals** from the present patent application itself, and did not consider it necessary to prove that any other public document teaches or suggests this feature.

Moreover, the Examiner has alleged that it would be "highly desirable to have additional data blocks in the fixed compression rates so that the position of the I frame does not have to be calculated." The Examiner's preceding allegation is not supported in Kawamura. In col. 3, lines 12-23 of Kawamura, Kawamura suggests that such calculation is desirable because it enables the positions of the I-blocks to be determined. The Examiner has not explained why he, and not Kawamura, considers such a simple calculation (yielding such a desirable result) to be undesirable.

Based on the preceding arguments, Applicants respectfully maintains that Kawamura *et al.* does not anticipate claims 1, 6, 11, and 12 and that claims 1, 6, 11, and 12 are in condition for allowance. Since claims 4, 5, and 13-15 depend from claim 1, claims 7-10 and 16-18 depend from claim 6, and claims 19-21 depend from claim 11, Applicants contend that claims 4,5, 7-10, 13-15,

and 19-21 are likewise in condition for allowance.

35 U.S.C. §103(a)

The Examiner rejected claim 2 under 35 U.S.C. §103(a) as being unpatentable over Kawamura et al. Since claim 2 has been cancelled, the rejection of claim 2 under 35 U.S.C. §103(a) is moot. Nonetheless, Applicants have argued *supra* the issue of former claim 2 in conjunction with the rejection of claims 1, 6, 11, and 12.

Conclusion

Based on the preceding arguments, Applicants respectfully believes that claims 1, 4-7, 9-22, and the entire application, are in condition for allowance and therefore request favorable action. However, should the Examiner believe anything further is necessary in order to place the application in better condition for allowance, or if the Examiner believes that a telephone interview would be advantageous to resolve the issues presented, the Examiner is invited to contact the Applicants' undersigned representative at the telephone number listed below.

Respectfully submitted,

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Amended Material

1. (TWICE AMENDED) A method for formatting a sequence of video images comprising the steps of:

encoding successive images of the sequence according to a predetermined coding scheme in which some images of the sequence are intra-coded, without reference to any other image of the sequence, and the remainder are respectively coded with reference to at least one further image of the sequence;

formatting the encoded data for each image into one or a sequence of data blocks and outputting a data block stream formed of the data block or blocks from successive ones of the sequence of video images, said formatting including formatting at least one image of the sequence into a plurality of data blocks;

characterised in that the step of formatting comprises the further steps of identifying intra-coded frames and of inserting additional data blocks in said data block stream at fixed periodically repeated intervals, each of said additional blocks carrying data identifying the relative location in the data block stream of the first or only data block in the data block stream of the closest previously formatted [of an] intra-coded image frame.

4. (AMENDED) A method as claimed in Claim [3] 1, wherein each additional data block stores further data identifying the length of the said closest previously formatted intra-coded image frame.

6. (TWICE AMENDED) A storage device capable of being sequential read and carrying an encoded and formatted sequence of video image frames, wherein some images of the sequence are intra-coded, without reference to any other image of the sequence, and the remainder are

respectively coded with reference to at least one further image of the sequence, and the encoded data for the succession of image frames is formatted into a sequence of data blocks, with at least one data block per encoded image frame, with at least one image of the sequence formatted into a plurality of data blocks, with the stored sequence of data blocks including additional data blocks, with each such additional data block identifying the storage device storage location of the first or only data block of the closest previously formatted [an] intra-coded image frame, wherein the said additional data blocks are provided at fixed periodically repeated intervals within the stored sequence of encoded image data blocks .

7. (AMENDED) A storage device as claimed in Claim 6, wherein the said additional data blocks [are provided at fixed periodically repeated intervals within the stored sequence of encoded image data blocks, and all data blocks] are of a common size.

11. (TWICE AMENDED) An encoder apparatus comprising means for encoding successive images of a video image sequence according to a predetermined coding scheme in which some images of the sequence are intra-coded, without reference to any other image of the sequence, and the remainder are respectively coded with reference to at least one further image of the sequence; means for formatting the encoded data for each image frame into one or a sequence of data blocks and outputting a data block stream formed of the data block or blocks from successive ones of the sequence of video images, said formatting including formatting at least one image of the sequence into a plurality of data blocks, said means for formatting being operable to identify intra-coded frames, and being configured to insert additional data blocks in said data block stream, each of said additional blocks carrying data identifying the relative location in the data block stream of the first or only data block of the closest previously formatted [an] intra-coded image frame, wherein each

of said additional data blocks are provided at fixed periodically repeated intervals within the stored sequence of encoded image data blocks .

12. (TWICE AMENDED) A video image player configured to receive and read the sequence of data blocks from a sequentially-readable storage device, said storage device capable of being sequential read and carrying an encoded and formatted sequence of video image, wherein some images of the sequence are intra-coded, without reference to any other image of the sequence, and the remainder are respectively coded with reference to at least one further image of the sequence, and the encoded data for the succession of image frames is formatted into a sequence of data blocks, with at least one data block per encoded image frame, with at least one image of the sequence formatted into a plurality of data blocks, with the stored sequence of data blocks including additional data blocks, with each such additional data block identifying the storage device storage location of the first or only data block of the closest previously formatted [an] intra-coded image frame, said player comprising a decoder arranged to receive the stream of data blocks, decode the image data and output a sequence of video image frames, said player being operable to output selected ones of said sequence in a fast-forward or fast reverse mode, the player comprising means for selecting frames by selecting every N^{th} additional data block and displaying the respectively identified intra-coded image frame, wherein every N^{th} additional data block is provided at fixed periodically repeated intervals.